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EXAMINER

WANG, JIN CHENG

ART UNIT	PAPER NUMBER
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2672

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7

Please find below and/or attached an Office communication concerning this application or proceeding.

12

Office Action Summary

Application No.

09/823,935

Applicant(s)

PETERSON ET AL.

Examiner

Jin-Cheng Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-97 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-97 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page 6, line 2, "such ascolor" should be "such as color". On page 26, line 2 of claim 37, "an image" should be "the image". On page 32, line 5 of claim 70, please delete "and" after ";". On page 32, line 6 of claim 70, please insert "the" before "shifted". Appropriate correction of all mistakes is required.
2. The applicant or their representatives are urged to review the specification and submit corrections for all mistakes of a grammatical, clerical, or typographical nature.

Claim Objections

3. Claim 37 is objected to because of the following informalities: On page 26, line 2 of claim 37, "an image" should be "the image". Appropriate correction is required.
4. Claim 70 is objected to because of the following informalities: On page 32, line 5 of claim 70, "; and" should be ";" and on line 6 of claim 70, "shifted" should be "the shifted". Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-97 are rejected under 35 U.S.C. 102(e) as being anticipated by Wong et al. U.S. Pat. No. 6,501,483.

7. Claim 1:

U.S. Pat. No. 6,501,483 to Wong et al. teaches a method for calculating values for pixels of an image (see the abstract), comprising:

Calculating sample values for pixels of an image in accordance with a sampling pattern for each pixel (column 4, lines 14-30), the sampling pattern for consecutive pixels alternating between a first and a second sampling pattern (figures 5A-5L and 7, column 6, lines 66-67, column 7, lines 1-53, column 10, lines 49-60), each sampling pattern defining one or more sampling locations at which sample values are calculated (figures 5A-5L), the sampling locations being relative to a pixel (figure 5A-5L); and

Determining a value for at least one pixel by combining sample values calculated for the sampling locations for the pixel (column 4, lines 14-65).

- The examiner notes that at 542 of Fig. 7, Wong teaches selecting a sampling pattern from a plurality of sampling patterns shown in figures 5A-5L, and based on the the super-sample pattern utilized, the location of the sub-pixel associated with each super-sample is determined according to the pattern shown in figures 5A-5L.

Claim 2:

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The claim 2 encompasses the same scope of invention as that of claim 1 except additional claimed limitation that each sampling pattern defines two sample locations and calculating sample values comprises calculating a pair of sample values whenever sample values for a pixel are calculated in accordance with the first or second sampling pattern, the sampling patterns alternating from one pixel to the next. However, Wong further discloses the claimed limitation that each sampling pattern defines two sample locations and calculating sample values comprises calculating a pair of sample values whenever sample values for a pixel are calculated in accordance with the first or second sampling pattern, the sampling patterns alternating from one pixel to the next (figure 1, column 4, lines 14-65, column 10, lines 23-37).

Claim 3:

The claim 3 encompasses the same scope of invention as that of claim 2 except additional claimed limitation that the pixels of the image are arranged along rows and columns parallel to first and second perpendicular axes, respectively, and the pair of sample locations per sampling pattern for at least two pixels are arranged along a line parallel to neither axis.

However, Wong further discloses the claimed limitation that the pixels that the image are arranged along rows and columns parallel to first and second perpendicular axes, respectively, and the pair of sample locations per sampling pattern for at least two pixels are arranged along a line parallel to neither axis (figure 1, column 4, lines 14-65, column 10, lines 23-37).

Claim 4:

The claim 4 encompasses the same scope of invention as that of claim 2 except additional claimed limitation of calculating a pair of sample values comprises calculating sample values at sample positions arranged according to either a first or second sample pattern, the first sampling

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pattern having sample positions on opposite sides of a line parallel to a first axis and dividing a respective pixel region in two, and the second sampling pattern having sample positions on opposite sides of a line parallel to a second axis and dividing a respective pixel region in two, the second axis perpendicular to the first axis.

However, Wong further discloses the claimed limitation that the pixels of calculating a pair of sample values comprises calculating sample values at sample positions arranged according to either a first or second sample pattern, the first sampling pattern having sample positions on opposite sides of a line parallel to a first axis and dividing a respective pixel region in two, and the second sampling pattern having sample positions on opposite sides of a line parallel to a second axis and dividing a respective pixel region in two, the second axis perpendicular to the first axis (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 5:

The claim 5 encompasses the same scope of invention as that of claim 4 except additional claimed limitation of the two lines parallel to the respective axes pass through the centers of respective pixels. However, Wong further discloses the claimed limitation that the pixels of the two lines parallel to the respective axes pass through the centers of respective pixels (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 6:

The claim 6 encompasses the same scope of invention as that of claim 5 except additional claimed limitation that each sampling pattern has a sample position on each side of both of two lines parallel to respective axes and passing through the center of respective pixels. However,

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Wong further discloses the claimed limitation that each sampling pattern has a sample position on each side of both of two lines parallel to respective axes and passing through the center of respective pixels (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 7:

The claim 7 encompasses the same scope of invention as that of claim 1 except additional claimed limitation that calculating sample values comprises calculating four sample values at four respective sample locations within a respective pixel region whenever a sampling pattern is applied to a pixel, each pixel region considered as divided evenly into a four-by-four array of sub-regions and the four sample locations defined for a pixel by any given sampling pattern arranged within the pixel region in a manner whereby no two sample points defined by the same sampling pattern are located in the same row or column of sub-regions.

However, Wong further discloses the claimed limitation that calculating sample values comprises calculating four sample values at four respective sample locations within a respective pixel region whenever a sampling pattern is applied to a pixel, each pixel region considered as divided evenly into a four-by-four array of sub-regions and the four sample locations defined for a pixel by any given sampling pattern arranged within the pixel region in a manner whereby no two sample points defined by the same sampling pattern are located in the same row or column of sub-regions (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 8:

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The claim 8 encompasses the same scope of invention as that of claim 7 except additional claimed limitation of no two sampling locations of the four defined by a given sampling pattern being located in the same row or column or diagonal of sub-regions.

However, Wong further discloses the claimed limitation of no two sampling locations of the four defined by a given sampling pattern being located in the same row or column or diagonal of sub-regions (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 9:

The claim 9 encompasses the same scope of invention as that of claim 8 except additional claimed limitation of each sampling location lying substantially at the center of a sub-region. However, Wong further discloses the claimed limitation of no two sampling locations of each sampling location lying substantially at the center of a sub-region (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 10:

The claim 10 encompasses the same scope of invention as that of claim 8 except additional claimed limitation that no two different sampling patterns applied to two different pixels define any two sampling locations which lie in corresponding sub-regions of their respective pixels.

However, Wong further discloses the claimed limitation that no two different sampling patterns applied to two different pixels define any two sampling locations which lie in corresponding sub-regions of their respective pixels (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

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Claim 11:

The claim 11 encompasses the same scope of invention as that of claim 10 except additional claimed limitation of the sampling patterns alternating per pixel for vertically-consecutive pixels. However, Wong further discloses the claimed limitation of the sampling patterns alternating per pixel for vertically-consecutive pixels (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 12:

The claim 12 encompasses the same scope of invention as that of claim 10 except additional claimed limitation of the sampling patterns alternating per pixel for horizontally-consecutive pixels. However, Wong further discloses the claimed limitation of the sampling patterns alternating per pixel for horizontally-consecutive pixels (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 13:

The claim 13 encompasses the same scope of invention as that of claim 10 except additional claimed limitation of the sampling patterns alternating per pixel both for horizontally-consecutive pixels and also for vertically-consecutive pixels. However, Wong further discloses the claimed limitation of the sampling patterns alternating per pixel both for horizontally-consecutive pixels and also for vertically-consecutive pixels (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

8. Claim 14:

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U.S. Pat. No. 6,501,483 to Wong et al. teaches a method for generating an image having pixels arranged in rows and columns parallel to first and second perpendicular axes, respectively (column 3, lines 41-67, column 4, lines 1-65), comprising:

Calculating pairs of sample values for pixels of the image in accordance with a plurality of sampling patterns, one sampling pattern per pixel, one pair of sampling points per sampling pattern (column 3, lines 41-67, column 4, lines 1-65, column 6, lines 66-67, column 7, lines 1-53, column 10, lines 23-46); and

Calculating a value for at least one pixel of the image from a respective pair or pairs of calculated sample values (column 3, lines 41-67, column 4, lines 1-65, column 6, lines 66-67, column 7, lines 1-67, column 8, lines 1-5, column 10, lines 23-46).

- The examiner notes that at column 7, lines 54-67 and column 8, lines 1-5, Wong teaches calculating the average pixel value from the stored super-sample values in contiguous memory locations, and therefore Wong teaches calculating a value for at least one pixel of the image from a respective pair or pairs of calculated sample values because $(S1+S2+S3+S4)/4 = ((S1+S2)/2 + (S3+S4)/2)/2$ where S1, S2, S3, S4 are super-sample values.

Claim 15:

The claim 15 encompasses the same scope of invention as that of claim 14 except additional claimed limitation that a first sampling pattern defines sample positions relative to a given pixel on opposite sides of a line parallel to a first axis of the image and dividing the

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respective pixel in two, and a second sampling pattern defines sample positions relative to a given pixel on opposite sides of a line parallel to a second axis of the image and dividing the respective pixel in two.

However, Wong further discloses the claimed limitation of that a first sampling pattern defines sample positions relative to a given pixel on opposite sides of a line parallel to a first axis of the image and dividing the respective pixel in two, and a second sampling pattern defines sample positions relative to a given pixel on opposite sides of a line parallel to a second axis of the image and dividing the respective pixel in two (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 16:

The claim 16 encompasses the same scope of invention as that of claim 15 except additional claimed limitation that the second sampling pattern comprises a sampling pattern substantially corresponding to the first sampling pattern rotated 90 degree.

However, Wong further discloses the claimed limitation that that the second sampling pattern comprises a sampling pattern substantially corresponding to the first sampling pattern rotated 90 degree (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 17:

The claim 17 encompasses the same scope of invention as that of claim 15 except additional claimed limitation that the sampling patterns alternate per pixel along at least one row or column of pixels.

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However, Wong further discloses the claimed limitation that the sampling patterns alternate per pixel along at least one row or column of pixels (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 18:

The claim 18 encompasses the same scope of invention as that of claim 15 except additional claimed limitation that each of the two sampling patterns is applied to every other pixel along at least one row or column of pixels, the second sampling pattern substantially corresponding to the first sampling pattern rotated 90 degrees.

However, Wong further discloses the claimed limitation that each of the two sampling patterns is applied to every other pixel along at least one row or column of pixels, the second sampling pattern substantially corresponding to the first sampling pattern rotated 90 degrees (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 19:

The claim 19 encompasses the same scope of invention as that of claim 15 except additional claimed limitation that the sampling pattern for each consecutive pixel alternates along a row or column of pixels between a given sampling pattern and its 90 degrees-rotated counterpart.

However, Wong further discloses the claimed limitation that the sampling pattern for each consecutive pixel alternates along a row or column of pixels between a given sampling pattern and its 90 degrees-rotated counterpart (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

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Claim 20:

The claim 20 encompasses the same scope of invention as that of claim 15 except additional claimed limitation that all sampling patterns are considered as dividing the regions of respective pixels into the same four-by-four array of sub-regions and four potential sample positions are arranged within the array in a manner whereby no two potential sample positions are located in the same row, column, or diagonal of sub-regions, the plurality of sampling patterns comprising first and second sampling patterns, each defining two sampling positions from the four potential sampling positions, the first sampling pattern having sample locations in the first and fourth rows of the array and the second sampling pattern having sample locations in the second and third rows of the array.

However, Wong further discloses the claimed limitation that all sampling patterns are considered as dividing the regions of respective pixels into the same four-by-four array of sub-regions and four potential sample positions are arranged within the array in a manner whereby no two potential sample positions are located in the same row, column, or diagonal of sub-regions, the plurality of sampling patterns comprising first and second sampling patterns, each defining two sampling positions from the four potential sampling positions, the first sampling pattern having sample locations in the first and fourth rows of the array and the second sampling pattern having sample locations in the second and third rows of the array (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 21:

The claim 21 encompasses the same scope of invention as that of claim 14 except additional claimed limitation of the sampling pattern alternating per pixel along at least one row

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or column of pixels. However, Wong further discloses the claimed limitation of the sampling pattern alternating per pixel along at least one row or column of pixels (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

Claim 22:

The claim 22 encompasses the same scope of invention as that of claim 14 except additional claimed limitation of each of the two sampling patterns being applied to every other pixel along at least one row or column of pixels, the second sampling pattern substantially corresponding to the first sampling pattern rotated 90 degrees. However, Wong further discloses the claimed limitation of of each of the two sampling patterns being applied to every other pixel along at least one row or column of pixels, the second sampling pattern substantially corresponding to the first sampling pattern rotated 90 degrees (figures 1-5, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53).

9. Claim 23:

U.S. Pat. No. 6,501,483 to Wong et al. teaches a method for calculating values for pixels of an image having the pixels arranged in rows and columns parallel to first and second perpendicular axes, respectively (column 3, lines 41-67, column 4, lines 1-65), comprising:

Calculating sample values for pixels of the image in accordance with a plurality of sampling rates (column 5, lines 12-67, column 6, lines 1-65), the sampling rate differing for at least two pixels of the image; and

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Calculating values for pixels of the image from a respective calculated sample values (column 3, lines 41-67, column 4, lines 1-65, column 6, lines 66-67, column 7, lines 1-53, column 10, lines 23-46).

- The examiner notes that at 542 of Fig. 7, Wong teaches selecting a sampling pattern from a plurality of sampling patterns shown in figures 1A-1F, 2A, 3A, 4A, 5A-5L, and two consecutive pixels with the different super-sample patterns should have different sampling rates and the sampling rate differing for at least two pixels of the image. In column 5, lines 20-24 of Wong, it is stated "FIG. 3B does not exhibit a consistent horizontal or vertical sampling frequency." Therefore, Wong fulfills claim 23.

Claim 24:

The claim 24 encompasses the same scope of invention as that of claim 23 except additional claimed limitation of the sampling rate alternating per pixel for consecutive pixels along lines parallel to one or the other axes of the image for at least some of the horizontal or vertical lines of pixels of the image.

However, Wong further discloses the claimed limitation of the sampling rate alternating per pixel for consecutive pixels along lines parallel to one or the other axes of the image for at least some of the horizontal or vertical lines of pixels of the image (figures 1-7, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53, column 10, lines 23-67, column 11, lines 1-67, column 12, lines 1-56).

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Claim 25:

The claim 25 encompasses the same scope of invention as that of claim 23 except additional claimed limitation of the sampling rate being constant for the pixels arranged along any given line parallel to the first axis and varies among the plurality of sampling rates for the pixels arranged along any given line parallel to the second axis.

However, Wong further discloses the claimed limitation of the sampling rate being constant for the pixels arranged along any given line parallel to the first axis and varies among the plurality of sampling rates for the pixels arranged along any given line parallel to the second axis (figures 1-7, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53, column 10, lines 23-67, column 11, lines 1-67, column 12, lines 1-56).

Claim 26:

The claim 26 encompasses the same scope of invention as that of claim 25 except additional claimed limitation of the first and second sampling rates alternating per pixel for consecutive pixels in any line parallel to the second axis.

However, Wong further discloses the claimed limitation of the first and second sampling rates alternating per pixel for consecutive pixels in any line parallel to the second axis (figures 1-7, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53, column 10, lines 23-67, column 11, lines 1-67, column 12, lines 1-56).

10. Claim 27:

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U.S. Pat. No. 6,501,483 to Wong et al. teaches a method for calculating values for pixels of an image having the pixels arranged in rows and columns parallel to first and second perpendicular axes, respectively (column 3, lines 41-67, column 4, lines 1-65), comprising:

Calculating sample values for pixels of the image in accordance with first and second sampling rates, the sampling rate remaining constant for consecutive pixels arranged along any one given line parallel to the first axis and varying between the first and second sampling rates for consecutive pixels arranged along any one given line parallel to the second axis (column 5, lines 12-67, column 6, lines 1-65); and

Calculating values for pixels of the image from a respective calculated sample values (column 3, lines 41-67, column 4, lines 1-65, column 6, lines 66-67, column 7, lines 1-53, column 10, lines 23-46).

- The examiner notes that at 542 of Fig. 7, Wong teaches selecting a sampling pattern from a plurality of sampling patterns shown in figures 1A-1F, 2A, 3A, 4A, 5A-5L, and two consecutive pixels with the different super-sample patterns should have different sampling rates and the sampling rate differing for at least two pixels of the image. In column 5, lines 20-24 of Wong, it is stated "FIG. 3B does not exhibit a consistent horizontal or vertical sampling frequency." Therefore, Wong fulfills claim 27.

Claim 28:

The claim 28 encompasses the same scope of invention as that of claim 27 except additional claimed limitation of the pixels of the image being arranged in rows parallel to the

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first axis and columns parallel to the second axis, and the first and second sampling rates alternating every row of pixels. However, Wong further discloses the claimed limitation of the pixels of the image being arranged in rows parallel to the first axis and columns parallel to the second axis, and the first and second sampling rates alternating every row of pixels (figures 1-7, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53, column 10, lines 23-67, column 11, lines 1-67, column 12, lines 1-56).

Claim 29:

The claim 29 encompasses the same scope of invention as that of claim 27 except additional claimed limitation of the first sampling rate being two samples per pixel and the second sampling rate being one sample per pixel. However, Wong further discloses the claimed limitation of the first sampling rate being two samples per pixel and the second sampling rate being one sample per pixel (i.e., super-sampling pattern relative to an arrangement of multiple pixels being non-uniform, see figures 1-7, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53, column 10, lines 23-67, column 11, lines 1-67, column 12, lines 1-56).

Claim 30:

The claim 30 encompasses the same scope of invention as that of claim 27 except additional claimed limitation of the first sampling being two samples per pixel and the second sampling rate being one sample per pixel, the two sample locations per pixel for the first sampling rate arranged within a pixel along a line forming an acute angle with respect to either the first or second axes.

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However, Wong further discloses the claimed limitation of the first sampling being two samples per pixel and the second sampling rate being one sample per pixel, the two sample locations per pixel for the first sampling rate arranged within a pixel along a line forming an acute angle with respect to either the first or second axes (i.e., super-sampling pattern relative to an arrangement of multiple pixels being non-uniform, see figures 1-7, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53, column 10, lines 23-67, column 11, lines 1-67, column 12, lines 1-56).

Claim 31:

The claim 31 encompasses the same scope of invention as that of claim 27 except additional claimed limitation of the first sampling rate being two samples per pixel and the second sampling rate being one sample per pixel, the two samples per pixel for the first sampling rate arranged within a pixel substantially along and on opposite sides of a line parallel to either the first or second axes that divides the pixel in two, the axis to which the line is parallel alternating per consecutive pixel arranged along a line parallel to the first axis.

However, Wong further discloses the claimed limitation of the first sampling rate being two samples per pixel and the second sampling rate being one sample per pixel, the two samples per pixel for the first sampling rate arranged within a pixel substantially along and on opposite sides of a line parallel to either the first or second axes that divides the pixel in two, the axis to which the line is parallel alternating per consecutive pixel arranged along a line parallel to the first axis (i.e., super-sampling pattern relative to an arrangement of multiple pixels being non-uniform, see figures 1-7, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53, column 10, lines 23-67, column 11, lines 1-67, column 12, lines 1-56).

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Claim 32:

The claim 32 encompasses the same scope of invention as that of claim 31 except additional claimed limitation of the two samples per pixel of the first sampling rate varying for every other consecutive pixel lying along a line parallel to the first axis between a given sampling pattern and another sampling pattern which is substantially the same pattern rotated 90 degrees.

However, Wong further discloses the claimed limitation of the two samples per pixel of the first sampling rate varying for every other consecutive pixel lying along a line parallel to the first axis between a given sampling pattern and another sampling pattern which is substantially the same pattern rotated 90 degrees (i.e., super-sampling pattern relative to an arrangement of multiple pixels being non-uniform, see figures 1-7, column 4, lines 14-65, column 10, lines 23-37, column 6, lines 66-67, column 7, lines 1-53, column 10, lines 23-67, column 11, lines 1-67, column 12, lines 1-56).

Claim 33:

U.S. Pat. No. 6,501,483 to Wong et al. teaches a method for calculating values for pixels of an image having its pixels arranged in rows and columns parallel to first and second perpendicular axes, respectively (column 3, lines 41-67, column 4, lines 1-65), comprising:

Calculating sample values for pixels of the image in accordance with first and second sampling pattern having four sample locations relative to a pixel, the region of potential sampling locations considered as divided evenly into four-by-four array of sub-regions and the four sample locations arranged in a manner whereby no two of the four sample locations are